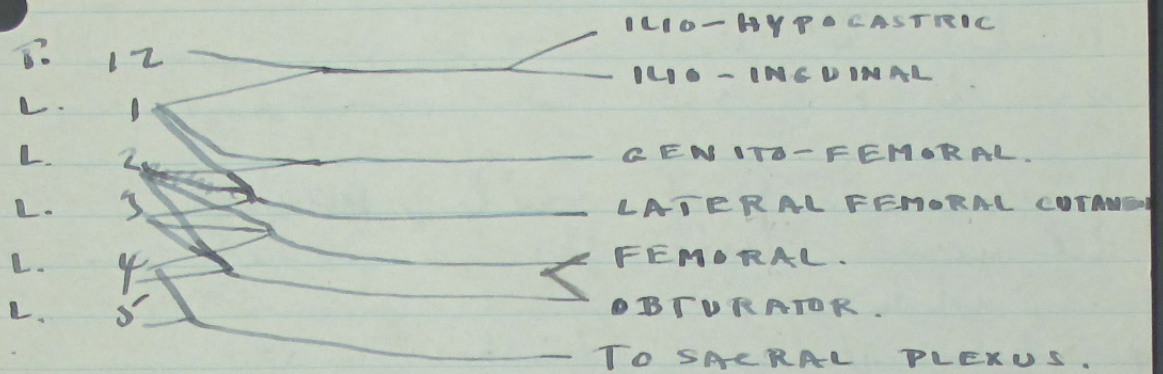


Lumbar Plexus.



Sacral Plexus

lumbar 4-5.
sacral 1-2-3.

In sacrum - post. wall of pelvis.
All nerves leave through great sciatic notch.

1. Superior gluteal lumbar 4-5.
sacral 1.
Supplies Glut. Med. & Min. &
Dense Fascia latae.

2. Inferior gluteal lumbar 5.
sacral 1-2.
Supplies Glut. Max.

3. Post. cutaneous Nerve of thigh.
sacral 1-2-3.

Supplies skin over back of thigh
+ skin of leg back.

4. Sciatic nerve lumbar 4-5.
sacral 1-2-3.

Then greater sciatic notch, midway
then greater trochanter & tuberosity of
ischium - divides into 2 large branches

1. medial popliteal
2. lateral popliteal

- help pass down back of thigh.

Supplies - biceps femoris.

- semi-membranosus

- semi-tendinosus.

- ischial fibres of adductor magnus

under gluteal muscle.
biceps long head
muscle

4. Medial popliteal. half-down back
 arises from lumbar 4-5. ↓ leg.
 Passes through middle of popliteal
 space - runs down back of leg &
 at space under medial malleolus
 & heel - divides into medial &
 lateral plantar nerves. (under
 plantar retinaculum)
Supplies gastrocnemius, plantaris, soleus,
 popliteus, tib. post. plant.
 digit. longus, plant. hallucis longus.
 All muscles in back of calf.

5. Medial plantar nerve.
 Arises under plantar retinaculum -
 runs along medial side of foot
 under abductor hallucis
Supplies. Abductor hallucis
 plant. digitorum brevis
 plant. hallucis
 1st. lumbrical
Skin supply - medial $\frac{2}{3}$ of foot.

Lateral plantar nerve.
 Under plantar retinaculum.
Supplies rest of intrinsic muscles
 of foot & skin on lateral side
 of foot. skin of 5th toe & $\frac{1}{2}$
 4th toes.

Lateral popliteal.

Starts $\frac{1}{2}$ way down back of thigh,
follows medial margin of
biceps femoris tendon, winds round
neck of fibula & divides into.

- 1) Musculo-cutaneous.
(superficial perineal.)
- 2) Ant. tibial.
(deep perineal.)

Short - supplies short head of
biceps femoris.

Musculo-cutaneous nerve.

Supplies peroneus longus & brevis.

Skin supply. skin of lateral side of leg.
- dorsum of foot, except Δ
between 1st & 2nd toe.

Ant. - tibial

Begins between head of fibula &
interos. dig. longus.

- down front of leg - lies deep.

Supplies - all muscles

tib. ant.

ext. dig. longus.

ext. hallucis "

peroneus tertius.

ext. dig. brevis (dorsum of foot)

Δ - Skin over area between 1st & 2nd toes

a condyloid.

Sliding joint - one bone slides on its opposite & the surfaces are flat. In many joints, gliding movement only one permitted. All joints certain amount of glide.

Muscles - contract to produce movement.
- movement of several kinds.

- 1) Locomotion - voluntary muscle.
 - 2) Internal Organs - involuntary muscle.
- exception - heart - cardiac muscle.

Voluntary - 2 main parts.

- 1) Body or fleshy belly.
(fleshy part contracts)
- 2) Attachments - at either end to bone.
 - 1) fleshy attachment - no apparent tendon.
 - 2) tendinous attachment.
- tendon will either attach to a "lump on the bone" or a "pit".
- pull of tendon causes lump.
 - 3) aponeurosis (flat fibrous attachment to a ridge).
- enables several muscles to pull on the same ridge.

Muscles also attached to skin (ex. face, around mouth & eyes + eye-lids).

If attachment of skin is at a point, there is a dimple, if at a line, a wrinkle.

Muscles may have single or multiple attachments.
Biceps muscle has 2 heads.

Fascia - covering of muscles - fibrous membrane

- of 2 kinds ^{kind}

- 1) superficial - fatty layer under skin
- 2) deep fascia - a sheath covering muscles
(no fat, a thin tough covering.)

Between muscle groups the deep fascia sends partitions to the bones, called septa (septum).

Septa cuts off one muscle group from another. Sometimes muscles attached to deep fascia.

Muscle fibres - microscopically minute threads

- about $\frac{1}{4}$ " long, $\frac{1}{600}$ " wide

- 600 sides by side to 1". 4 billion

Action - can shorten when ordered to do so, when ordered to by nerve.

Has power of contraction - contractile.

When fibre contracts - does so to fullest extent - but all fibres don't contract on every order.

If a few contract, the muscle is ready for work - tone.

If more contract, a slight movement.

If all contract, a maximum movement.

Attachments by fibrous tissue. (205) (T + A)

- no contractile power.

- for attachment only.

Origin

- fixed attachment, does not move.

- nearer centre of body, & attached end of limb.

Insertion

- attached to part moved.

- Opposite to origin.

Muscle may have reversed action.

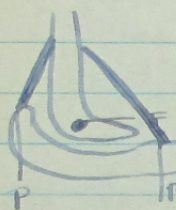
Attachments to nerve of muscle.
Each muscle has a motor nerve, to
carry messages to it & regulate it.
Has blood supply of arteries & veins.

Action - movements performed.

- no muscle acts alone, work in groups to produce movement.
- like living levers - has 3 parts.

1) pivot

2) Pivot Point - from which it acts.
a joint. A weight to be moved &
muscle supplies power. (fulcrum)
Fulcrum between weight & power.



2nd type - muscle pulls between weight
& joint.

Because muscles are ^{inserted} attached close to
joints in which they act, they are
mechanically fast but weak.

No levers with int. between fulcrum &
power.

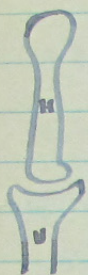
Muscles in groups.

- named individually.
- when one muscle group contracts &
opposite muscle group relaxes.

Flexors - pull in front of joint, vertically.

Extensors - behind.

Upper Arm Muscles



- act chiefly on the elbow joint.
- between humerus & ulna.
- is hinge joint (only flexion & extension)

Flexor muscles - Brachialis

- origin - front of lower half of humerus
- insertion - front of elbow

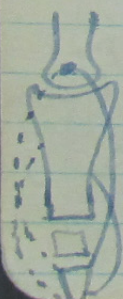
This muscle pulls vertically in front of the elbow & will so flex the elbow.

Elbow extension - Triceps - muscle with 3 heads

- pulls from both scapula & humerus.
- has long head from just below scapula.
- has 2 humeral heads from back of shaft of humerus
- inserted on the olecranon of ulna
- long head extends the shoulder joint.

- Biceps - muscle inserted on tuberosity of radius.
- acts like brachialis.
 - flexes & supinates.

Forearm muscles - act chiefly on the wrist



- wrist is condylar & knuckle joint.
- 2 relays of muscles.

- 1) Superficial group from condyles of humerus.
- flexors - on medial epicondyle.
- extensors - on lateral epicondyle.

2) Deep group rising

- from forearm bones.
- flexors - from front.
- extensors - from back.

These insertions are on the metacarpals + phalanges.

- act on all the joints, they cross (ie) - everything in front of joints will flex.
- those behind will extend.
- those on medial side of wrist will adduct.
- those on lateral side will abduct.
- some inserted on wrist alone.
- others on fingers to flex + extend.

Finger Flexors

- long flexors.
- have their fleshy bellies in the forearm + long tendons to the fingers.
- Superficial ones - in the finger tendon splits + makes a sliding pulley for deep one to work on.
- Deep flexor - goes to terminal phalanx.
- produces an even flexion of fingers.
- finger flexors also flex wrist.

Flexor Retinaculum - a ligament bridging arch of carpal bones at wrist to make tunnel for long flexor tendons.

Synovial sheaths - double sleeve at wrist + in hand to allow tendons to slide easily.

Fibrous sheaths - hold tendons in fingers in position.

- are attached to phalanges.

Thumb - has special flexor + extensor set.

Fingers - share a common muscle

flexor digitorum.

extensor digitorum.

- extensors go to all 4 fingers, but in index + little finger usually have each a special extensor.

Whole upper limb is designed for flexion.

Extension is a simpler movement - only preparation for grasping.

Short muscles of the hand - for fine movements.

Thumb - Thenar - ball of thumb.

- O - from flexor retinaculum.

- from lateral carpal bones.

I - into bones of thumb.

use - to perform opposition.

Bringing thumb opposite the palm, to grasp.

little finger - Hypothenar - ball of little finger.

use - to deepen palm on medial side.

Between metacarpals - inter-ossii

I - on extensor tendons of fingers.

use - to spread + extend fingers.

Pronator - pronate forearm.

- across front of forearm.

1) medial epicondyle

2) front of ulna



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